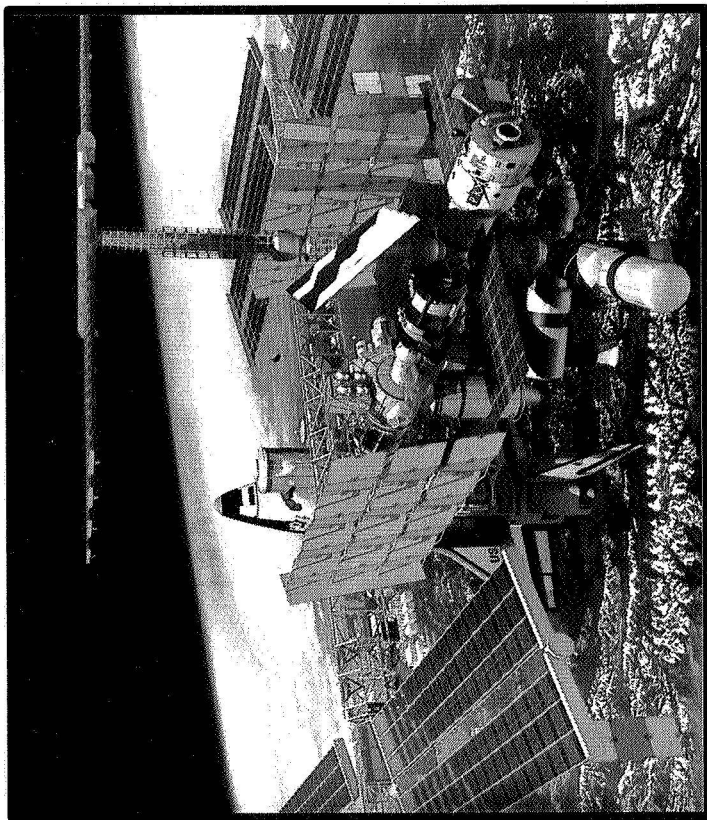




# EXPRESS Pallet Payload Interface Requirements

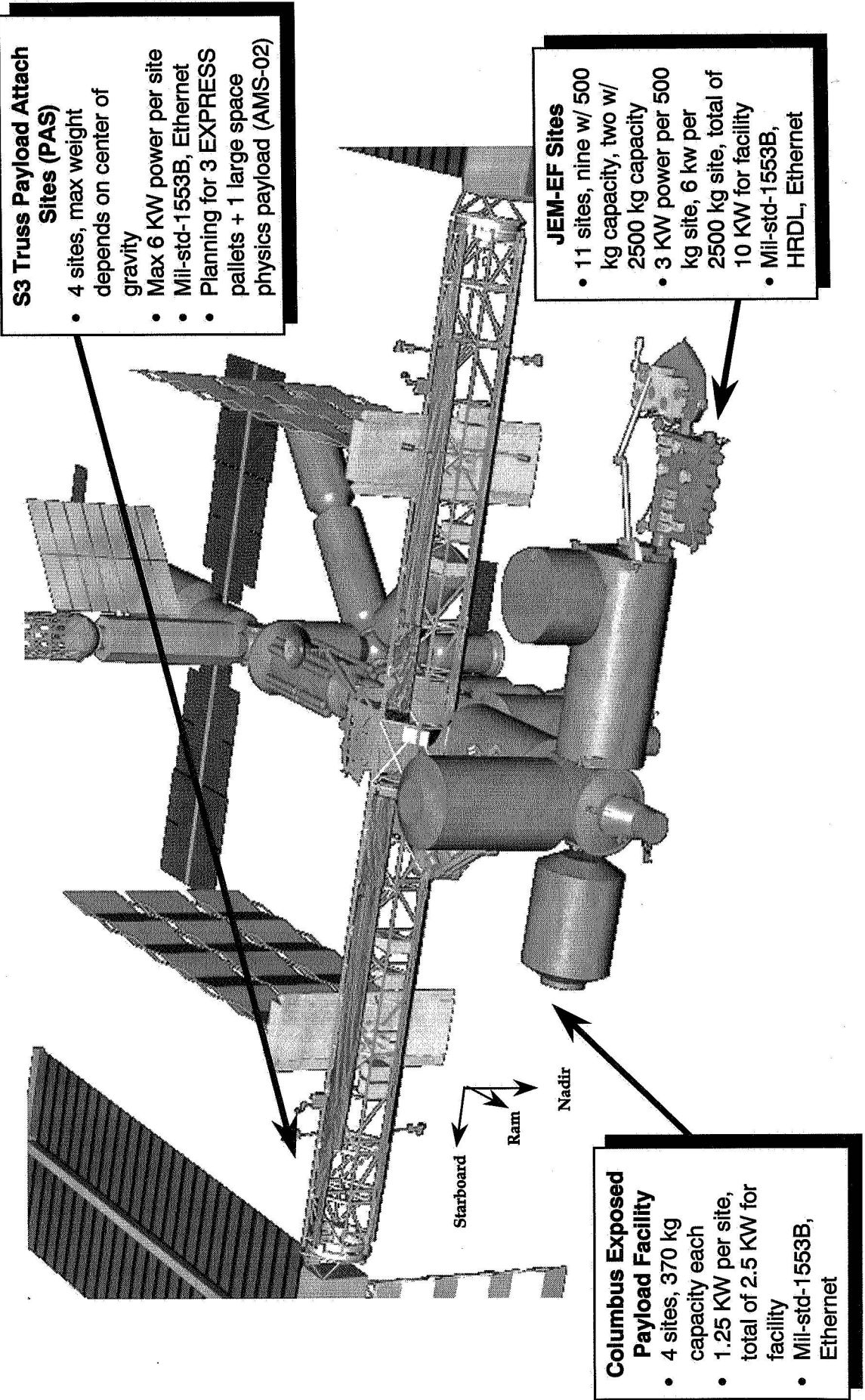


*Presentation at XNAV Industry Day*

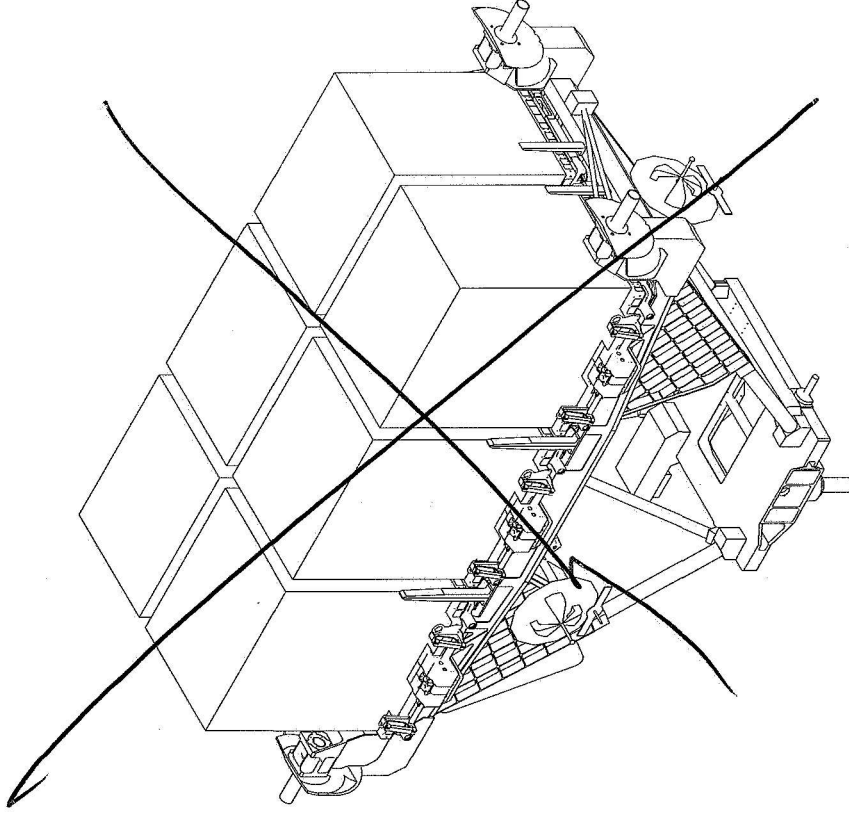
*Alan Holt  
Space Station Payloads Office  
August 30, 2004*

08/19/2004

# External Payload Sites

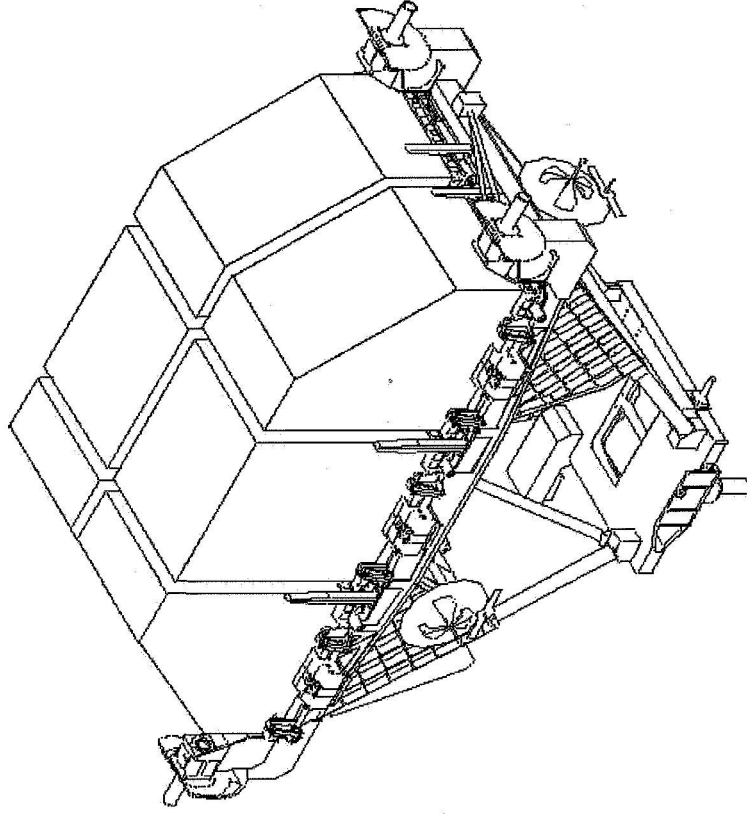


# EXPRESS Pallet with Six Payload Envelopes



Pallet with full envelope available  
for payloads in corner locations  
(requires revision to current  
baseline design)

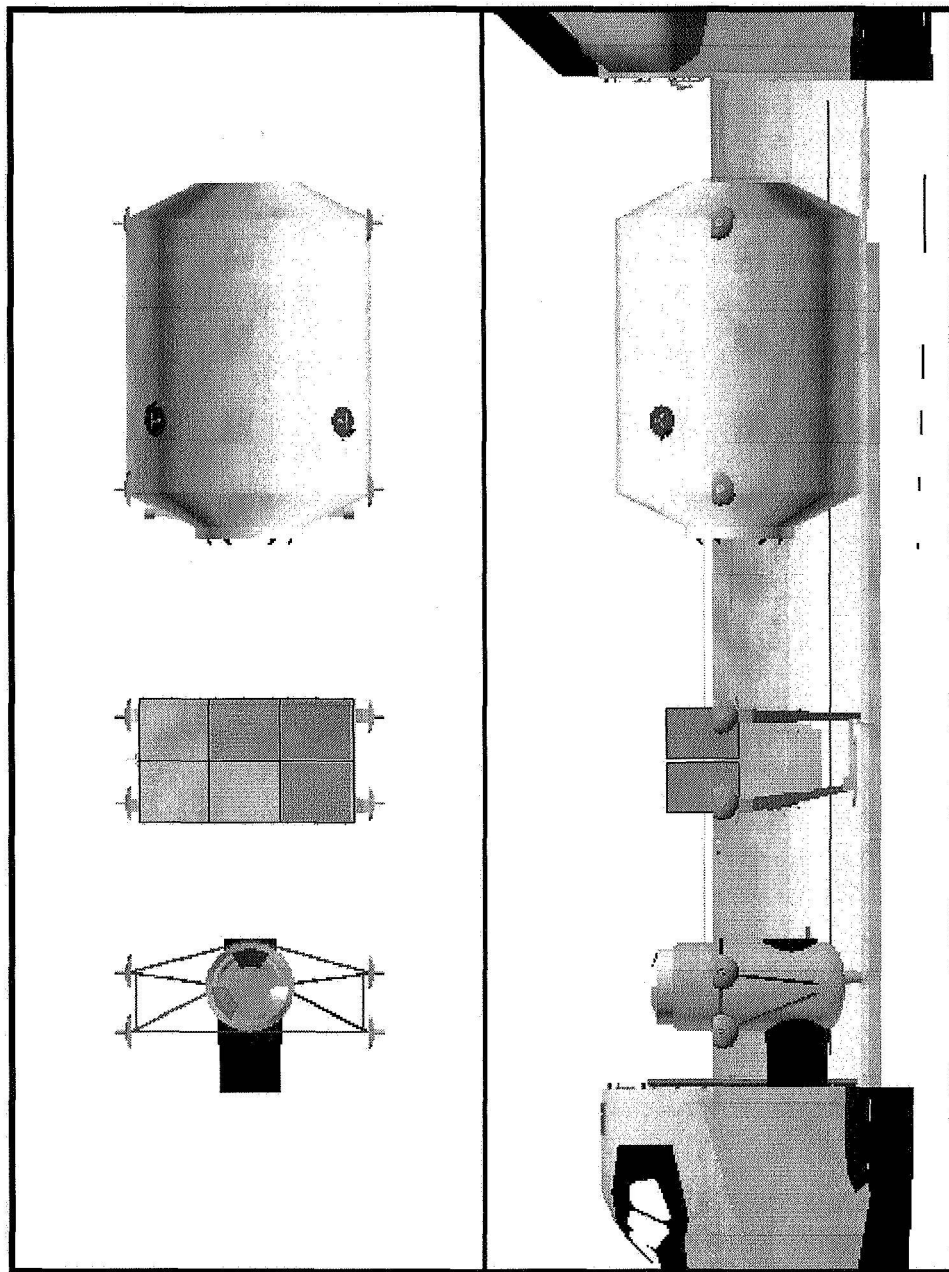
08/19/2004



Pallet with restricted envelope  
for payloads in corner locations  
(consequence of deck height of  
current baseline design)

# EXPRESS Pallet in Payload Bay

## Representative Layout



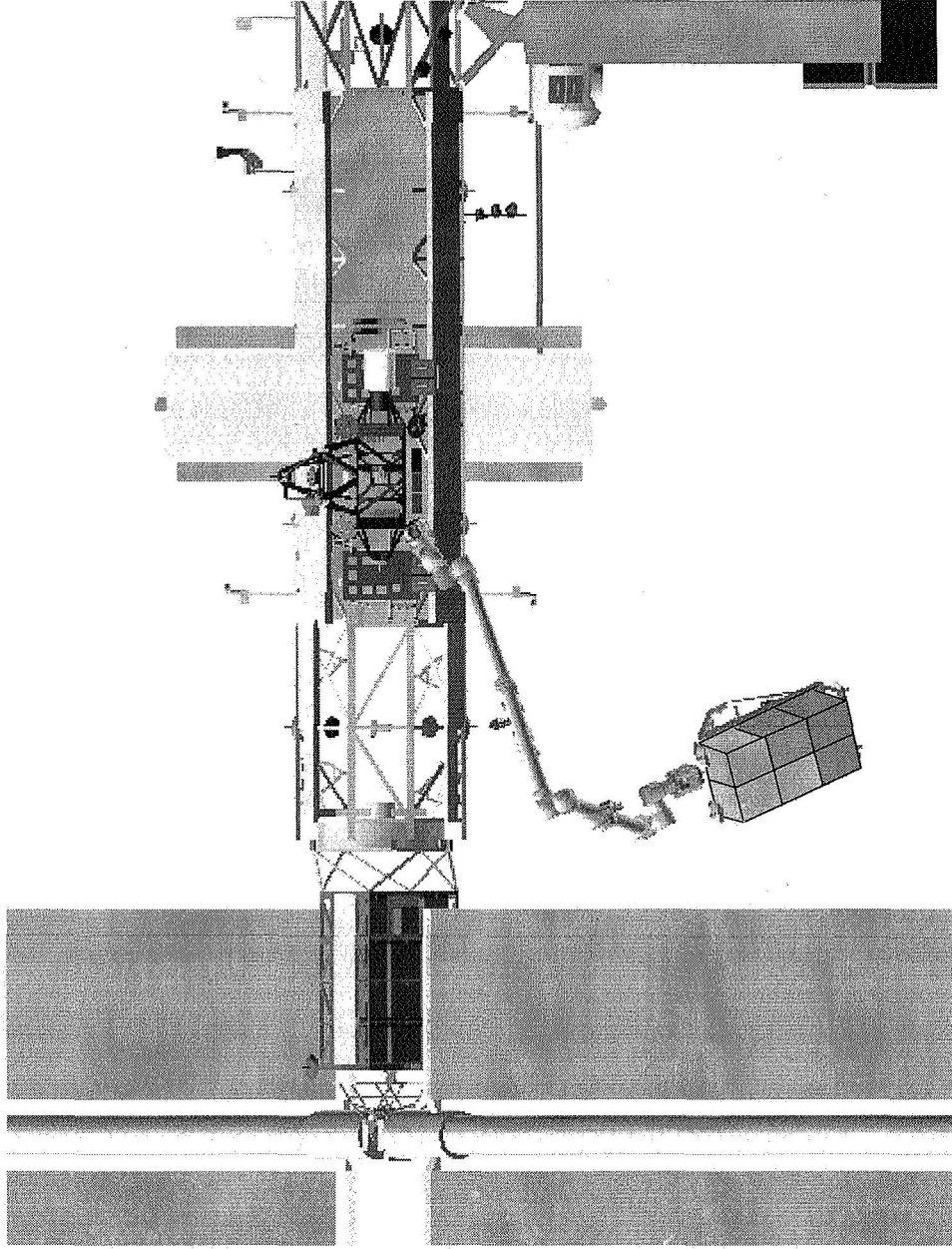
Om To supply  
VN PRESS.  
FIGURE

08/19/2004



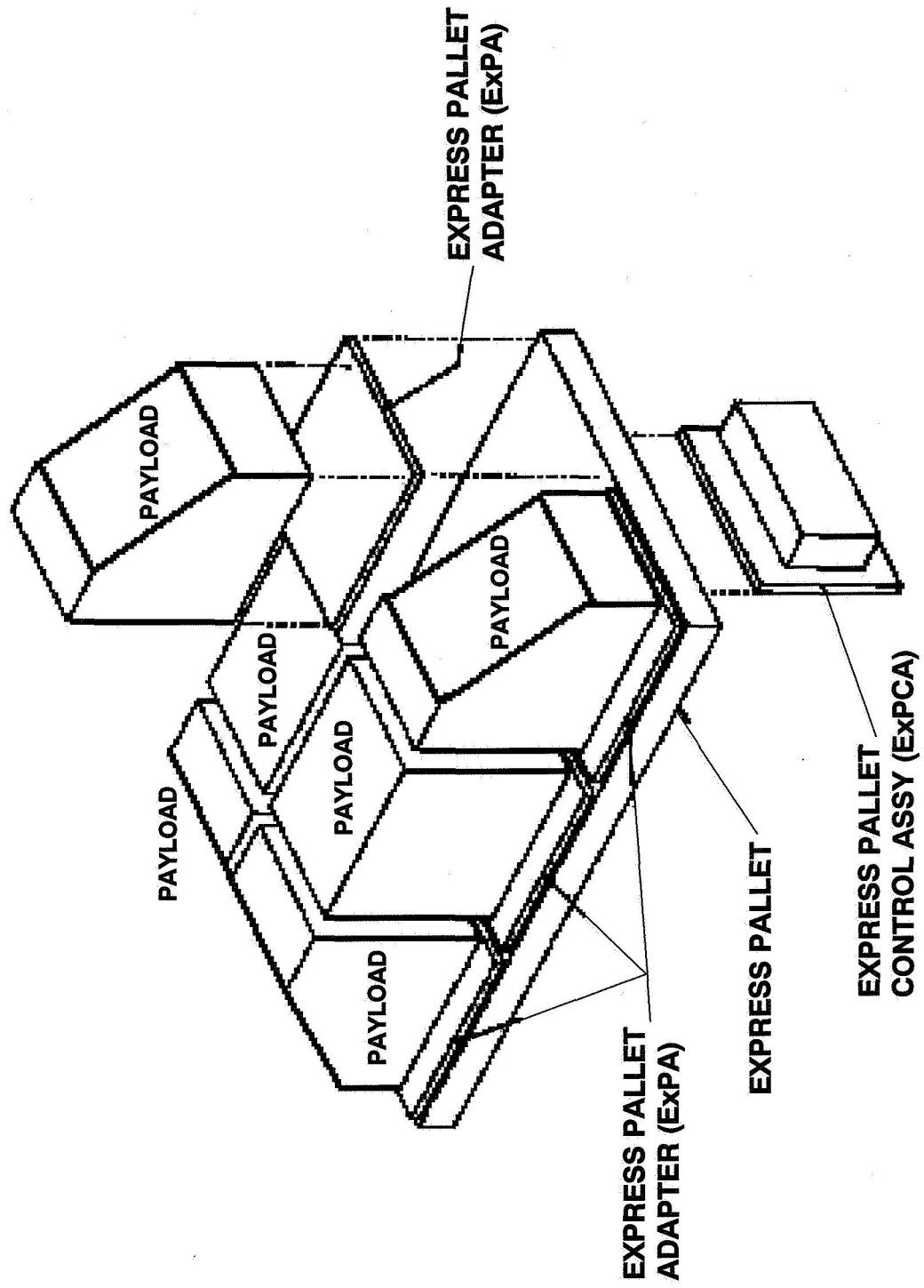
# **EXPRESS Pallet Installation**

## **SSRMS positions pallet for PAS mating on S3 truss**



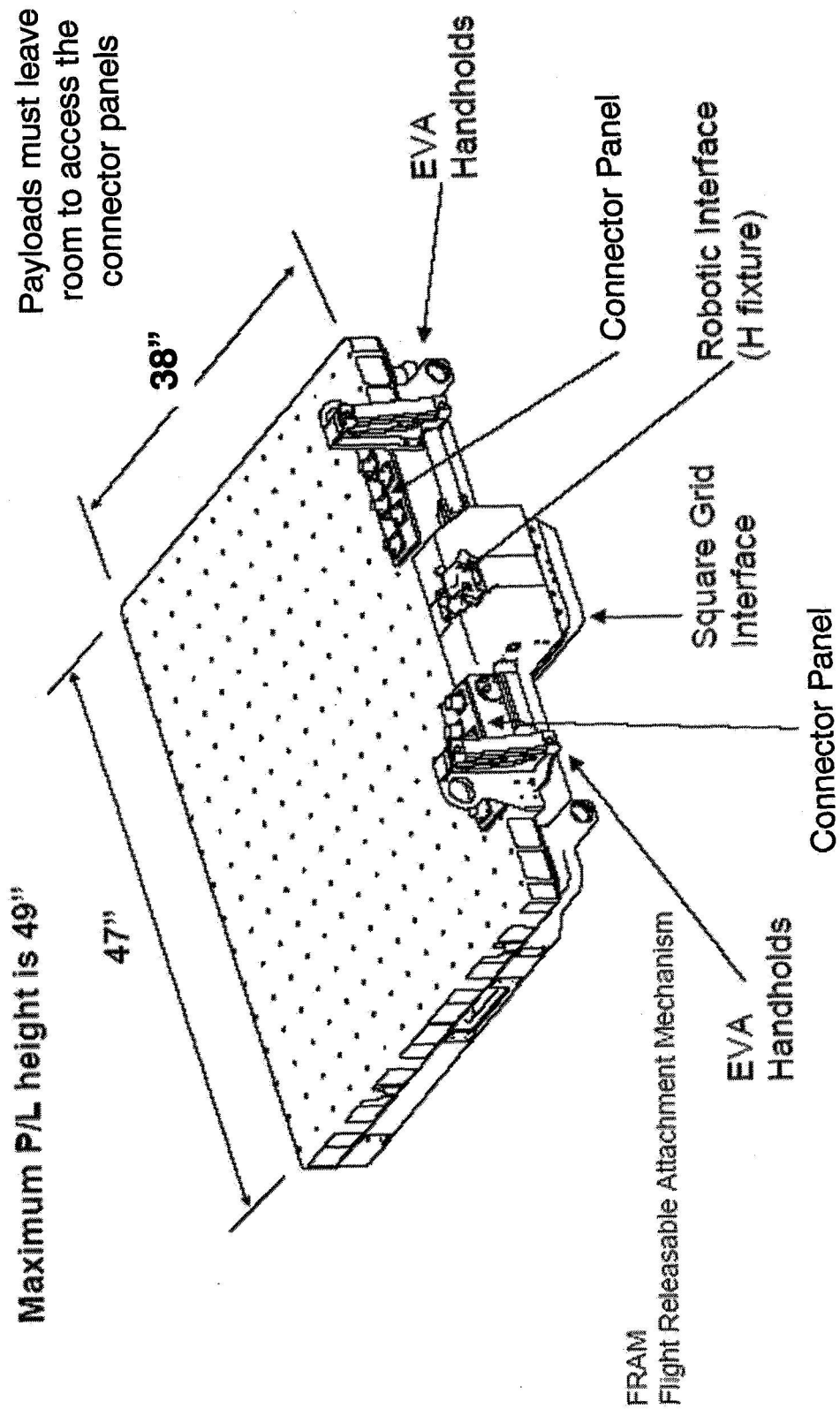
08/19/2004

# EXPRESS Pallet Major Components

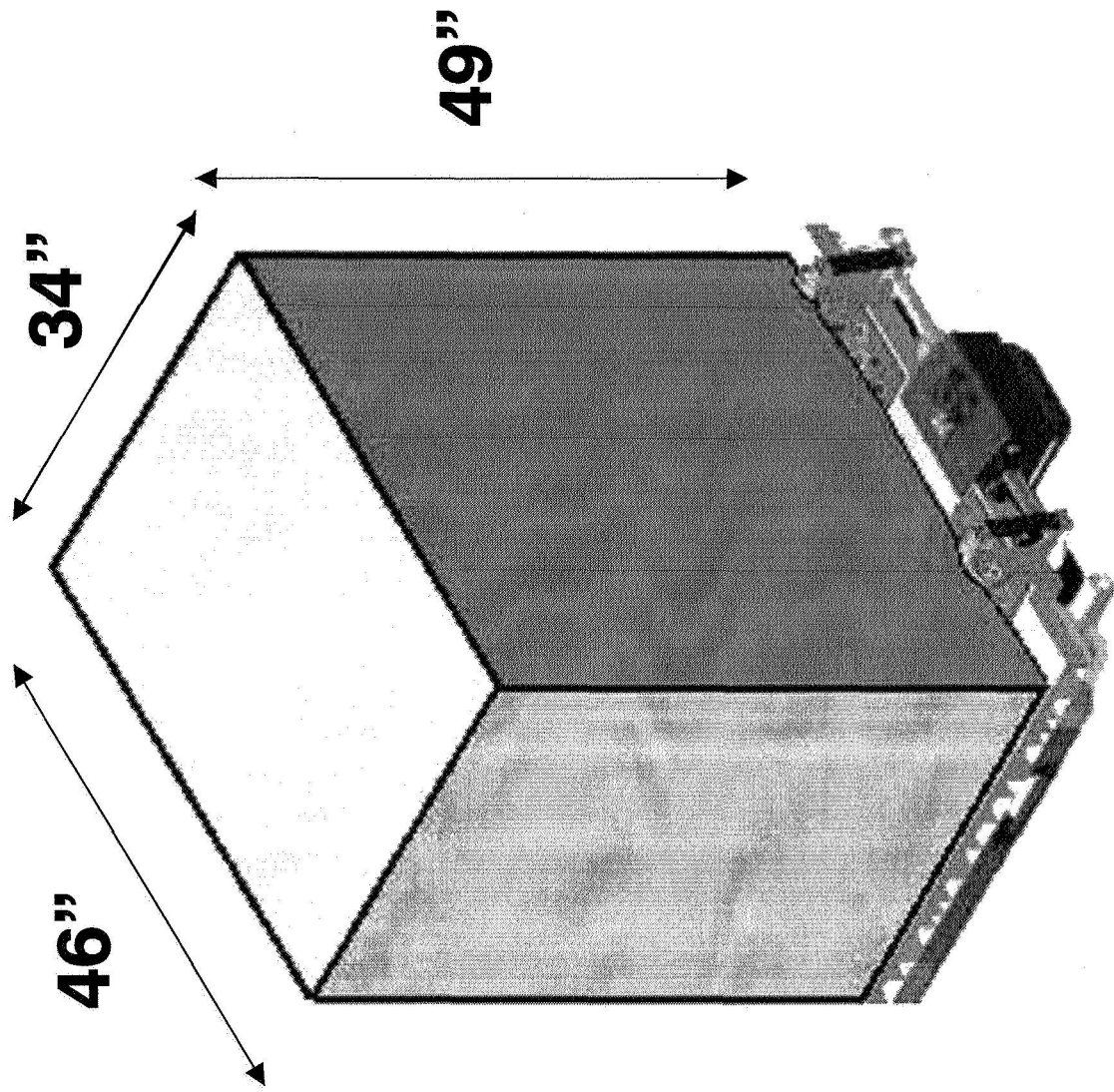


# EXPRESS Pallet Adapter

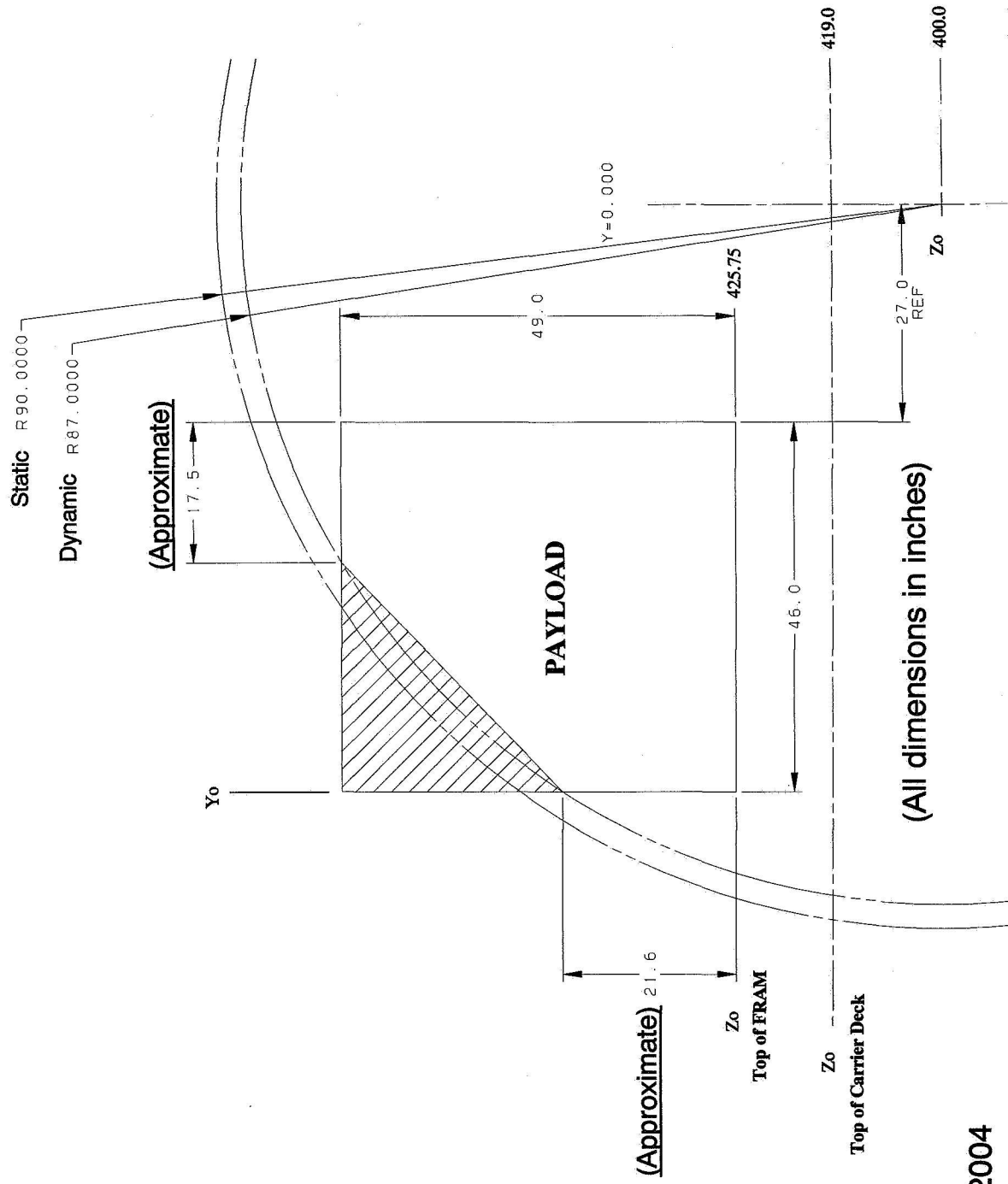
## (FRAM w/ Small Adapter Plate)



# EXPRESS Pallet Center Location Payload Envelope

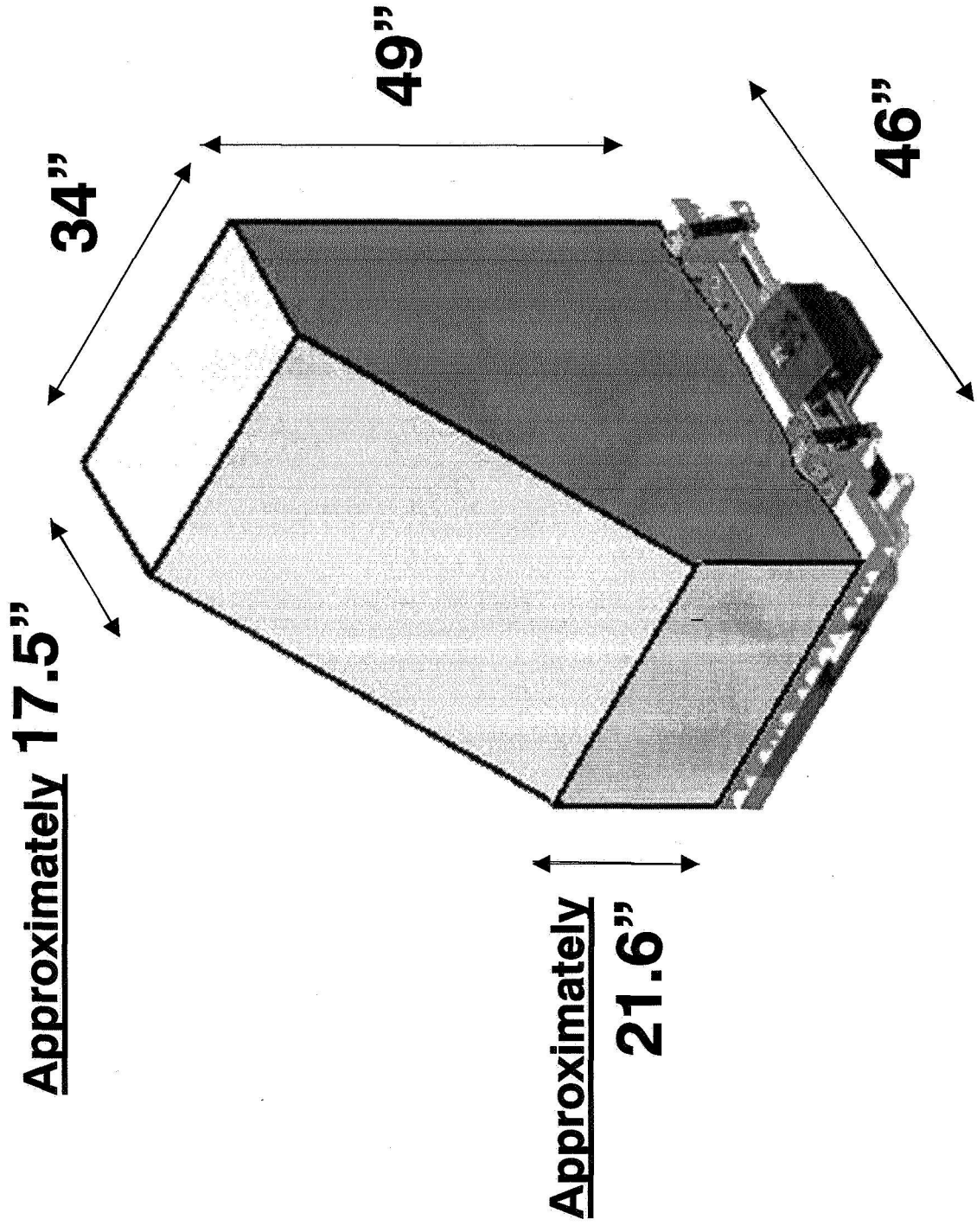


# Envelope Restriction for EXPRESS Pallet Corner Payload Locations



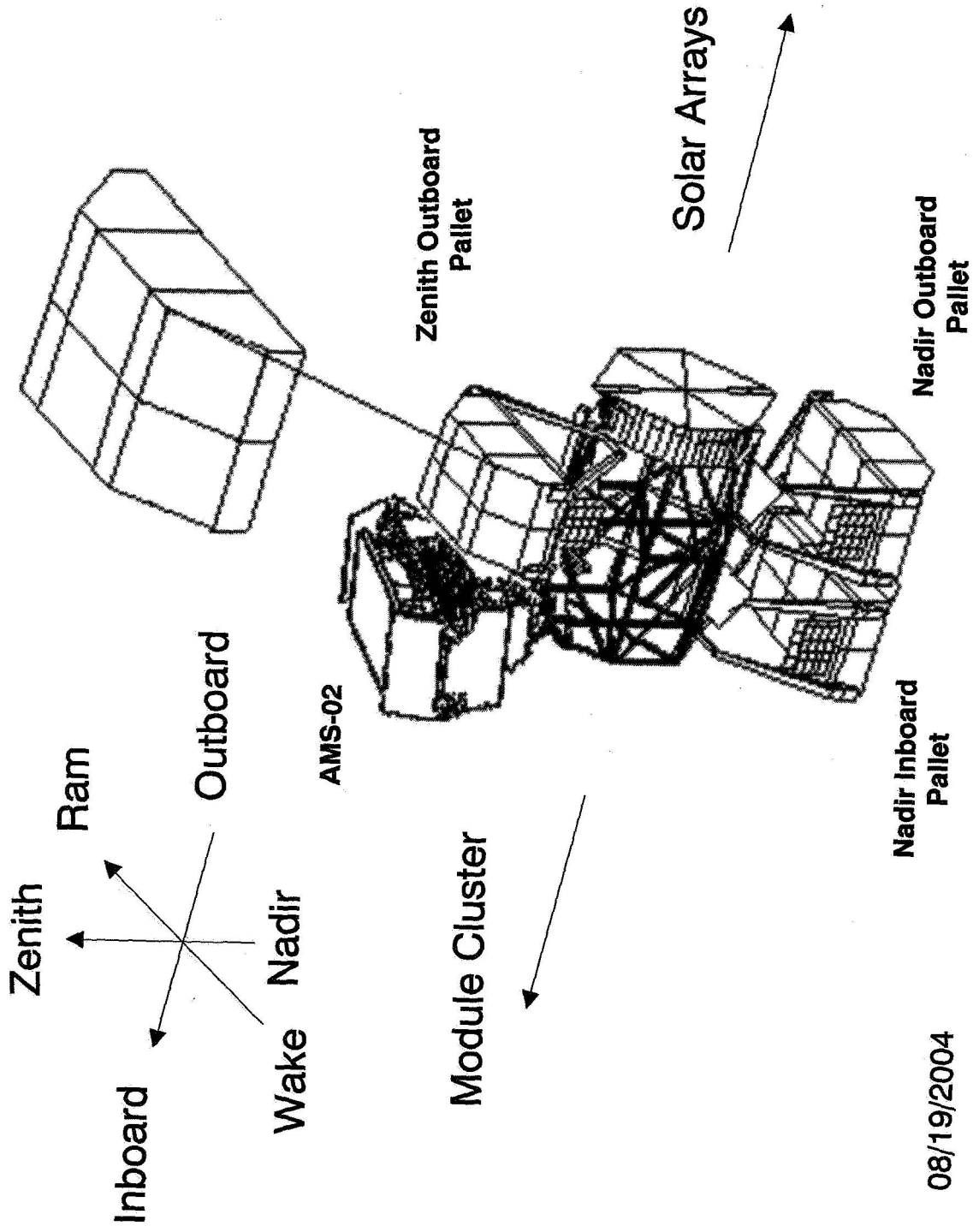
08/19/2004

Envelope Restriction for EXPRESS Pallet Corner Payload Location





# EXPRESS Pallet-PAS Truss Configuration



# EXPRESS Pallet Payload Services and Specifications

## Number of Available Payload Locations:

Six locations per pallet; three pallets planned. Two smaller payloads can combine to fit more than one payload per location.

## Allowable Payload Dimensions:

(per location)

Launch envelope, center location: 1.16 x 0.86 x 1.24 m  
(46 x 34 x 49 inches)

(full volume may not be available for corner locations)

After installation on ISS, extensions beyond launch envelope (booms, antennae, etc.) generally possible if no structural or safety issues and if no interference with adjacent payloads.

## Maximum Payload Weight (per location):

227 kg (500 lbs) per payload location. The Express Pallet Adapter does not count against this allocation.

## Maximum Power Draw (per location): (subject to overall ISS availability)

2.5 kw, 120 v DC (no more than 1.25 kw on each of two channels)

1.0 kw, 28 v DC ( $\pm 10\%$ , no more than 500 W on each of two channels)

(Total Pallet Maximum 6.0 kw, 120 v DC, no more than 3.0 kw on each of two channels)

(Total Pallet Maximum 1.0 kw, 28 v DC, no more than 500 W on each of two channels)

## C&DH Connectivity to ISS (each location):

MIL-STD-1553B, 1 Mbps

Payload Local Bus

Ethernet, 10-Base-T, 6 Mbps (original design; may be built as 100-Base-T instead)

# EXPRESS Pallet Payload Services and Specifications

## (continued)

### **Provisions for Active Cooling:**

#### **Interface to ISS:**

None, no interface to ISS TCS system.  
EXPRESS Pallet Adapter (ExPA).

#### **Field of View / Visibility Constraints:**

Variable, depends on specific site.

#### **Interaction / Operability:**

Ground commanding available.

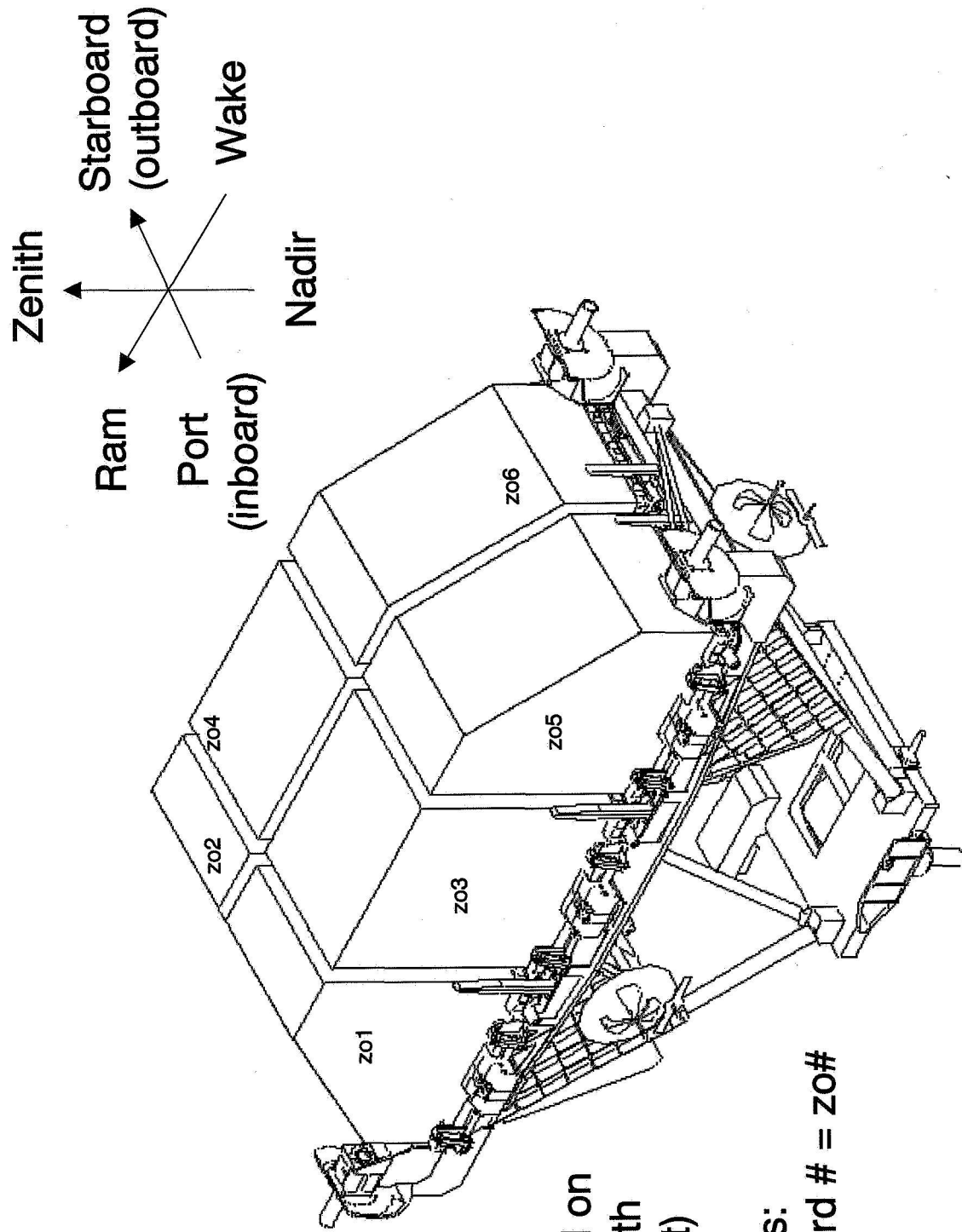
#### **Microgravity Environment:**

Quasi-steady-state accelerations will be greater than one micro-g.

#### **Other Notes:**

Due to proximity of AMS-02 magnet, payloads mounted on the adjacent zenith-outboard pallet should be tolerant of magnetic fields on the order of tens of gauss.

# Zenith Outboard Pallet



(AMS located on adjacent zenith Inboard pallet)

Location codes:  
Zenith Outboard # = zo#